

AMENDMENTS TO THE CLAIMS

1-5 (Canceled).

6 (Re-presented – formerly dependent claim 6). A biocompatible material comprising
~~according to claim 1~~

a mixture of a protein solution and a polymer solution including a derivative of a hydrophilic polymer with a functionality of at least three, wherein, upon mixing, the protein solution and the polymer solution cross-link to form a non-liquid, three-dimensional network that degrades over time back to a liquid form, the polymer including a degradation control region selected to achieve a desired degradation period,

wherein the degradation control region comprises at least one selectable enzymatically degradable moiety.

7 (Currently amended). A material according to claim 6

wherein the enzymatically degradable moiety includes Leu-Gly-Pro-Ala (~~collagenes~~
collagenase sensitive linkage) or Gly-Pro-Lys (plasmin sensitive linkage).

8-11 (Canceled).

12 (Re-presented – formerly dependent claim 12). A biocompatible material comprising
~~according to claim 8~~

a mixture of a protein solution and a polymer solution including a derivative of a hydrophilic polymer with a functionality of at least three, wherein, upon mixing, the protein solution and the polymer solution cross-link over time to form a non-liquid, three-dimensional network, the polymer including a cross-linking group selected to achieve a desired cross-linking period,

wherein the cross-linking group is selected to react with at least one thiol.

13 (Re-presented – formerly dependent claim 13). A biocompatible material comprising
~~according to claim 8~~

a mixture of a protein solution and a polymer solution including a derivative of a hydrophilic polymer with a functionality of at least three, wherein, upon mixing, the protein solution and the polymer solution cross-link over time to form a non-liquid, three-dimensional network, the polymer including a cross-linking group selected to achieve a desired cross-linking period,

wherein the cross-linking group is selected from a group consisting essentially of vinyl sulfone, N-ethyl maleimide, iodoacetamide, and orthopyridyl disulfide.

14 (Canceled).

15 (Re-presented – formerly dependent claim 15). A biocompatible material comprising according to claim 8

a mixture of a protein solution and a polymer solution including a derivative of a hydrophilic polymer with a functionality of at least three, wherein, upon mixing, the protein solution and the polymer solution cross-link over time to form a non-liquid, three-dimensional network, the polymer including a cross-linking group selected to achieve a desired cross-linking period,

wherein the cross-linking group is selected from a group consisting essentially of aldehydes.

16-30 (Canceled).

31 (Re-presented – formerly dependent claim 31/1). A biocompatible material comprising according to claim 1 or 8

a mixture of a protein solution and a polymer solution including a derivative of a hydrophilic polymer with a functionality of at least three, wherein, upon mixing, the protein solution and the polymer solution cross-link to form a non-liquid, three-dimensional network that degrades over time back to a liquid form, the polymer including a degradation control region selected to achieve a desired degradation period,

wherein the polymer solution comprises at least one hybrid protein.

32 (Re-presented – formerly dependent claim 32/1). A biocompatible material comprising according to claim 1 or 8

a mixture of a protein solution and a polymer solution including a derivative of a hydrophilic polymer with a functionality of at least three, wherein, upon mixing, the protein solution and the polymer solution cross-link to form a non-liquid, three-dimensional network that degrades over time back to a liquid form, the polymer including a degradation control region selected to achieve a desired degradation period,

wherein the polymer solution comprises at least one synthetic amino acid sequence.

33-43 (Canceled).

44 (Currently amended). A system for forming a biocompatible material comprising a protein solution,

a polymer solution including a derivative of a hydrophilic polymer with a functionality of at least three, wherein, upon mixing, the protein solution and the polymer solution cross-link to form a non-liquid, three-dimensional network that degrades over time back to a liquid form, the polymer including a degradation control region selected to achieve a desired degradation period, the polymer also including a cross-linking group selected to achieve a desired cross-linking period, and

instructions for forming a mixture of the protein solution and polymer solution and for applying the mixture to at least one of seal a vascular puncture site, seal tissue from blood leaks, seal gas leaks, seal liquid leaks, seal solid leaks, prevent post-operative adhesions, repair a tissue void, augment tissue, embolize an arterio-venous malformation, fill an aneurysm, deliver a pharmaceutical, and deliver cells.

45-80 (Canceled).

81 (Currently amended). A system according to claim 44 ~~or 47 or 50 or 53 or 56 or 59 or 62 or 65 or 68 or 71 or 73 or 76~~

wherein the degradation control region comprises at least one selectable enzymatically degradable moiety.

82 (Currently amended). A system according to claim 81

wherein the enzymatically degradable moiety includes Leu-Gly-Pro-Ala (collagen sensitive linkage) or Gly-Pro-Lys (plasmin sensitive linkage).

83 (Currently amended). A system according to claim 44 ~~or 47 or 50 or 53 or 56 or 59 or 62 or 65 or 68 or 71 or 73 or 76~~

wherein the cross-linking group is selected to react with at least one thiol.

84 (Currently amended). A system according to claim 44 ~~or 47 or 50 or 53 or 56 or 59 or 62 or 65 or 68 or 71 or 73 or 76~~

wherein the cross-linking group is selected from a group consisting essentially of vinyl sulfone, N-ethyl maleimide, iodoacetamide, and orthopyridyl disulfide.

85 (Currently amended). A system according to claim 44 ~~or 47 or 50 or 53 or 56 or 59 or 62 or 65 or 68 or 71 or 73 or 76~~

wherein the cross-linking group is selected to react with at least one amine.

86 (Currently amended). A system according to claim 44 ~~or 47 or 50 or 53 or 56 or 59 or 62 or 65 or 68 or 71 or 73 or 76~~

wherein the cross-linking group is selected from a group consisting essentially of aldehydes.

87-108 (Canceled).

109 (Original). A biocompatible material comprising a mixture of a protein solution and a polymer solution which, upon mixing, cross-link to form a non-liquid, three-dimensional network, and an agent that undergoes color change in response to cross-linking of the mixture.

110 (Original). A material according to claim 109

wherein the agent undergoes color change in response to change in pH

111 (Original). A material according to claim 109

wherein the agent exhibits a first color when the mixture is in a liquid state and a second color, different than the first color, when the mixture forms the non-liquid, three-dimensional network.

112 (Original). A material according to claim 109

wherein the agent exhibits a first color when the mixture is in transition between a liquid state and the non-liquid, three dimensional network, and a second color, different than the first color, when the mixture forms the non-liquid, three-dimensional network.

113 (Original). A material according to claim 109

wherein the agent includes xlenol blue.

114 (Original). A material according to claim 109

wherein the agent includes phenol red.

115 (Original). A material according to claim 109

wherein the agent includes a mixture of xlenol blue and phenol red.

116 (Original). A material according to claim 109

wherein the agent includes phenolphthalein.

117 (Original). A material according to claim 109

wherein the agent includes o-cresolphthalein.

118 (Original). A material according to claim 109

wherein the agent includes bromothymol blue.

119 (Original). A material according to claim 109

wherein the agent includes a mixture of bromothymol blue and phenolphthalein or o-cresolphthalein.

120 (New/Re-presented – formerly dependent claim 31/8). A biocompatible material comprising

a mixture of a protein solution and a polymer solution including a derivative of a hydrophilic polymer with a functionality of at least three, wherein, upon mixing, the protein solution and the polymer solution cross-link over time to form a non-liquid, three-dimensional network, the polymer including a cross-linking group selected to achieve a desired cross-linking period,

wherein the polymer solution comprises at least one hybrid protein.

121 (New/Re-presented – formerly dependent claim 32/8). A biocompatible material comprising

a mixture of a protein solution and a polymer solution including a derivative of a hydrophilic polymer with a functionality of at least three, wherein, upon mixing, the protein solution and the polymer solution cross-link over time to form a non-liquid, three-dimensional network, the polymer including a cross-linking group selected to achieve a desired cross-linking period,

wherein the polymer solution comprises at least one synthetic amino acid sequence.